UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R037XA002NM

Site Name: Sandy

Precipitation or Climate Zone: 7 to 10 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on mesas, plateaus and valley side slopes. Slopes are generally from 0 to 8 percent, however, the Fruitland soil will occur on slopes as steep as 30 percent. Elevations range from 4,800 to 6,400 feet above sea level.

Land Form:

1. Mesas
2. Plateaus
3. Valley side slopes

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	4,800	6,400
Slope (percent)	0	30
Water Table Depth (inches)	N/A	>72

Flooding:	**Minimum**	**Maximum**
Frequency	Rare	Occasional
Duration	Very brief	Brief

Ponding:	**Minimum**	**Maximum**
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

This site has an arid, mild, dry climate with distinct seasonal temperature variations and large annual and diurnal temperature changes.

Mean annual precipitation varies from 7 to 10 inches. Deviations of 4 inches or more are quite common. Distribution is 65 percent during the native plant growth period, which is from April through September. May and June are the dry months. During July, August, and September 3.5 inches of precipitation influences the presence and production of warm-season plants. Late fall and winter moisture is conducive to the production of cool-season plants, which usually begin growth in March and end with plant maturity and seed dissemination. This usually takes place in the early part of June when the moisture deficiency and warmer temperatures occur. The Gulf of Mexico is the principal source of moisture for summer precipitation, which is characterized by brief afternoon thunderstorms. Winter moisture occurs as light rain or snow.

Temperatures vary from a mean monthly of 75 degrees F in July to 27 degrees F in January. From a maximum of 106 degrees F to a minimum of 35 degrees F below zero. The average last killing frost in the spring is May 8, and the first killing frost in the fall is October 10. The frost-free season is approximately 160 days. Temperatures are conducive for native grass and forb growth from April through September. Maximum shrub growth occurs in the spring months.

The wind blows most frequently from an easterly direction, however, a majority of the stronger winds (10 – 25 miles per hour) are from a westerly quadrant. Spring is the windiest season. Average hourly wind velocities are near 6 miles per hour. Spring and summer winds increase transpiration rates of native plants and rapidly dry the surface soil. Small soil particles are often displaced by the wind near the soil surface and often results in structural damage to native plants, especially young seedlings.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	114	151
Freeze-free period (days):	143	177
Mean annual precipitation (inches):	7	10

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.46	.70	12.7	43.1
February	.46	.74	18.4	50.8
March	.54	.70	22.7	60.4
April	.42	.56	29.3	70.0
May	.38	.62	37.6	79.5
June	.29	.68	46.6	90.0
July	.68	1.46	54.8	94.6
August	.79	1.83	53.1	91.8
September	.80	1.13	44.3	85.6
October	.78	1.30	31.7	72.4
November	.52	.68	20.9	56.3
December	.54	.64	12.8	46.6

Climate Stations:

				Period		
Station ID	291647	Location	Chaco Canyon Natl. Monument, NM	From: 06/01/22	To:	12/31/01
Station ID	293134	Location	Farmington 3NE, NM	From: 1971	To:	2000
Station ID	293340	Location	Fruitland 2E, NM	From: 01/01/14	To:	12/31/01
Station ID	296465	Location	Otis, NM	From: 02/01/14	To:	12/31/01
Station ID	298284	Location	Shiprock, NM	From: 08/01/26	To:	12/31/01

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils in this site are deep and well drained. The surface layer is a pale brown sandy loam; sandy clay loam or fine sandy loam about 5 inches thick. The subsoil and substratum or underlying layer is a pale brown sandy loam, fine sandy loam or sandy clay loam about 55 inches or more thick.

They formed in eolian and alluvial material derived from sandstone and shale. Water intake rate is moderately rapid to rapid. Available water-holding capacity ranges from 4.8 to 6.8 inches in a 5-foot profile.

Parent Material Kind: Alluvium and eolian
Parent Material Origin: Sandstone and shale

Surface Texture:

1. Sandy loam
2. Loamy
3. Fine sandy loam

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Sandy
Surface Fragments <=3" (% Cover): N/A
Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): 15 to 35
Subsurface Fragments >=3" (%Volume): N/A

	Minimum	Maximum
Drainage Class:	Well	Excessively
Permeability Class:	Moderately slow	Very rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	0.00	4.00
Sodium Absorption Ratio:	0.00	10.0
Soil Reaction (1:1 Water):	6.6	9.4
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	3	6
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: Historic Climax Plant Community
The aspect of vegetation on this site is dominantly grassland characterized by short and mid-grasses. Shrubs and perennial forbs are a minor component of the plant community. Annual forbs occur in relative abundance during the spring and summer months in years of above average growing conditions.

Canopy Cover:	
Trees and shrubs	5 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs (plant density)	15
Bare ground	65
Surface gravel	0
Surface cobble and stone	0
Litter (percent)	15
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	210	420	630
Forb	30	60	90
Tree/Shrub/Vine	60	120	180
Lichen			
Moss			
Microbiotic Crusts			
Total	300	600	900

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	ACHY	Indian Ricegrass	120 – 150	120 – 150
2	HECO26	Needleandthread	30 – 60	30 – 60
	HENE5	New Mexico Feathergrass		
3	SPCR	Sand Dropseed	60 – 90	60 – 90
	SPGI	Giant Dropseed		
	SPFL2	Mesa Dropseed		
	SPCO4	Spike Dropseed		
4	BOGR2	Blue Grama	30 – 60	30 – 60
5	ARPUP6	Purple Threeawn	18 – 30	18 – 30
6	ELEL5	Bottlebrush Squirreltail	18 – 30	18 – 30
7	PLJA	Galleta	18 – 30	18 – 30
8	SPAI	Alkali Sacaton	30 – 60	30 - 60

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
9	PENST	Penstemon spp.	18 – 30	18 – 30
	CHAL7	Lambsquarters		
	OXYTR	Locoweed spp.		
	ASCLE	Milkweed spp.		
	DESO2	Tansymustard		
	AMSIN	Fiddleneck spp.		
	CLSE	Rocky Mountain Beeplant		
	ERIOG	Buckwheat spp.		

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
10	KRLA2	Winterfat	18 – 48	18 – 48
11	ARTR2	Big Sagebrush	18 – 48	18 – 48
12	ATCA2	Fourwing Saltbush	30 – 60	30 – 60
13	EPCU	Cutler's Mormon-tea	12 – 30	12 – 30
	TETRA	Horsebrush spp.		
14	GUSA2	Broom Snakeweed	18 – 30	18 - 30
	YUGL	Small Soapweed		

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Additional plants which usually grow on this site in varying amounts, dependent on current growing season conditions are: foxtail barley, verbena, sixweeks fescue, sixweeks grama, annual bromes, silverleaf nightshade, ring muhly, Russian thistle, western wheatgrass, Indianwheat, and cacti spp.

Plant Growth Curves

Growth Curve ID **0902NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Mixed short/mid-grassland with a minor component of shrubs and forbs.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	10	25	30	10	3	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This ecological site provides habitats, which support a resident animal community that is characterized by pronghorn antelope, badger, kit fox, black-tailed jackrabbit, Ord's kangaroo rat, northern grasshopper mouse, sparrow hawk, raven, horned lark, Woodhouse's toad, lesser earless lizard and striped whipsnake.

The rock wren is a summer resident. While not resident, mule deer will move out of adjacent habitats to feed in these ecological sites.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	**Hydrologic Group**
Betonnie	B
Councelor	B
Fruitland	B
Kwakina	A
Pinavetes	A
Shiprock	B
Shipeesi	B

Recreational Uses:

No data

Wood Products:

No data

Other Products:

Grazing:

This site is suitable for grazing use by cattle, sheep, horses, antelope, deer and burros.

Under the pressure of uncontrolled grazing, the potential plant community deteriorates. There is a marked increase in amounts of shrubs, forbs, and cacti; shrubs and half-shrubs dominate the site.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	5.0 – 9.0
75 – 51	6.0 – 11.0
50 – 26	8.0 – 18.0
25 – 0	18.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock
Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Mesa Dropseed	Sporobolus flexuosus	EP	U	U	U	D	D	D	D	D	D	U	U	U
Giant Dropseed	Sporobolus giganteus	EP	U	U	U	D	D	D	D	D	D	U	U	U
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U

Animal Kind: Livestock
Animal Type: Horses

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Mesa Dropseed	Sporobolus flexuosus	EP	U	U	U	D	D	D	D	D	D	U	U	U
Giant Dropseed	Sporobolus giganteus	EP	U	U	U	D	D	D	D	D	D	U	U	U
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U

Animal Kind: Livestock
Animal Type: Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Alkali Sacaton	Sporobolus airoides	EP	U	U	U	U	U	D	D	D	U	U	U	U
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Sand Dropseed	Sporobolus cryptandrus	EP	U	U	D	D	D	U	U	U	U	U	U	U

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites:

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: New Mexico

County: San Juan

Latitude:

Longitude:

Township: 27 N

Range: 11 W

Section: 16

Is the type locality sensitive? Yes ☐ No ☐

General Legal Description: **A typical pedon of Shiprock fine sandy loam in San Juan County, New Mexico, 975 feet east, 175 feet north of the southwest corner of section 16, T. 27 N., R. 11 W.**

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the San Juan River Valley, Mesas and Plateaus 37 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: San Juan, McKinley.

Characteristic Soils Are:	
Shiprock, Shipeesi, Fruitland	
Other Soils included are:	
Betonnie, Councelor, Kwakina, Pinavetes	

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	03/07/79	Don Sylvester	03/07/79

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	07/08/02	George Chavez	2/12/03